

**SAFETY DATA SHEET**

According to 1907/2006/EC, Article 31

Revision number: 3

Revision date: 10/30/2014

1. IDENTIFICATION**Identification of the substance or preparation**

Product name: Isophorone Diisocyanate (mixture of isomers)
Product code: I0314

Use of the substance/preparation

Recommended use: Reagents

Company/undertaking identification

TCI Chemicals (India) Pvt. Ltd.
 Plot No. B-28, Phase II,
 5th Cross Street, MEPZ-SEZ, Tambaram,
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2. HAZARDS IDENTIFICATION**Indication of danger:**

N - Dangerous for the environment

T - Toxic

Xi - Irritant

R-phrase(s)

R23 - Toxic by inhalation.

R36/37/38 - Irritating to eyes, respiratory system and skin.

R42/43 - May cause sensitisation by inhalation and skin contact.

R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

GHS classification**PHYSICAL HAZARDS**

Not classified

HEALTH HAZARDS

Acute toxicity (Inhalation)

Category 3

Skin corrosion/irritation

Category 2

Serious eye damage/eye irritation

Category 2

Respiratory sensitization

Category 1

Skin sensitization

Category 1

Specific target organ toxicity

Respiratory tract irritation

- Single exposure [Category 3]

ENVIRONMENTAL HAZARDS

Long-term aquatic hazard

Category 2

GHS label elements, including precautionary statements**Pictograms or hazard symbols****Signal word**

Danger

Hazard statements

H331-Toxic if inhaled.

H315-Causes skin irritation.

H319-Causes serious eye irritation.

H334-May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317-May cause an allergic skin reaction.

H335-May cause respiratory irritation.

H411-Toxic to aquatic life with long lasting effects.

Precautionary statements**[Prevention]**

P261-Avoid breathing dust/fume/gas/mist/vapours/spray.

P271-Use only outdoors or in a well-ventilated area.

P273-Avoid release to the environment.

P272-Contaminated work clothing should not be allowed out of the workplace.

P264-Wash hands thoroughly after handling.

P285-In case of inadequate ventilation wear respiratory protection.

P280-Wear protective gloves/eye protection/face protection.

I0314**Isophorone Diisocyanate (mixture of isomers)**

Page 1 of 4

2. HAZARDS IDENTIFICATION

[Response]	P304+P340-IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P311-Call a POISON CENTER or doctor/physician. P305+P351+P338-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313-If eye irritation persists: Get medical advice/attention. P302+P352-IF ON SKIN: Wash with plenty of soap and water. P333+P313-If skin irritation or rash occurs: Get medical advice/attention. P363-Wash contaminated clothing before reuse. P342+P311-If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. P391-Collect spillage.
[Storage]	P403+P233-Store in a well-ventilated place. Keep container tightly closed. P405-Store locked up.
[Disposal]	P501-Dispose of contents/container through a waste management company authorized by the local government
Other hazards which do not result in classification	May cause polymerization.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture:	Substance
Components:	Isophorone Diisocyanate (mixture of isomers)
Percent:	>99.0%(GC)
CAS Number:	4098-71-9
EC-No:	223-861-6
Synonyms:	3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl Isocyanate (mixture of isomers)
Chemical Formula:	C ₁₂ H ₁₈ N ₂ O ₂

4. FIRST AID MEASURES

Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
Skin contact:	Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/physician.
Eye contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
Ingestion:	Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Do NOT induce vomiting.
Most important symptoms/effects, acute and delayed:	Cough, Sore throat, Burning sensation, Abdominal pain, Redness, Pain, Burn
Protection of first-aiders:	A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.
Indication of immediate medical attention and special treatment needed, if necessary:	Medical observation is indicated.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:	Dry chemical, foam, water spray, carbon dioxide.
Unsuitable extinguishing media:	Solid streams of water
Specific hazards arising from the chemical:	This substance may polymerize explosively when heated or involved in a fire. Container may explode when heated. Combat fire from a sheltered position. Take care as it may decompose upon combustion or in high temperatures to generate poisonous fume.
Precautions for firefighters:	Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Keep containers cool by spraying with water. Eliminate all ignition sources if safe to do so.
Special protective equipment for firefighters:	When extinguishing fire, be sure to wear personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	Use extra personal protective equipment (self-contained breathing apparatus). Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.
Environmental precautions:	Prevent product from entering drains.
Methods and materials for containment and cleaning up:	Absorb spilled material in dry sand or inert absorbent before recovering it into a covered container. In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

7. HANDLING AND STORAGE

Precautions for safe handling	
Technical measures:	Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent generation of vapour or mist. Wash hands and face thoroughly after handling. Use a closed system if possible. Use a ventilation, local exhaust if vapour or aerosol will be generated.
Advice on safe handling:	Avoid contact with skin, eyes and clothing.
Conditions for safe storage, including any incompatibilities	
Storage conditions:	Keep container tightly closed. Store in a refrigerator.

7. HANDLING AND STORAGE

Packaging material:	Store under inert gas. Protect from moisture. Store locked up. Store away from incompatible materials such as oxidizing agents. Heat-sensitive, Moisture-sensitive Comply with laws.
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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls:	Install a closed system or local exhaust. Also install safety shower and eye bath.
Exposure limits:	
ACGIH TLV(TWA):	0.005 ppm
Personal protective equipment	
Respiratory protection:	Half or full facepiece respirator, self-contained breathing apparatus(SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.
Hand protection:	Impervious gloves.
Eye protection:	Safety goggles. A face-shield, if the situation requires.
Skin and body protection:	Impervious protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C):	Liquid
Form:	Clear
Colour:	Colorless - Almost colorless
Odour:	Pungent
pH:	No data available
Melting point/freezing point:	-60°C
Boiling point/range:	159°C/2kPa
Flash point:	155°C
Flammability or explosive limits:	
Lower:	0.7%
Upper:	4.5%
Vapour pressure:	0.04Pa/20°C
Relative density:	1.06
Solubility(ies):	
[Water]	No data available
[Other solvents]	No data available
Log Pow:	4.75
Autoignition temperature:	430°C

10. STABILITY AND REACTIVITY

Chemical stability:	Polymerization may occur under the influences of heat, light or on contact with polymerization initiators such as peroxides etc.
Possibility of hazardous reactions:	No special reactivity has been reported.
Conditions to avoid:	Heat, Light
Incompatible materials:	Oxidizing agents, Acids, Bases, Alcohols, Amines, Amides, Mercaptan, Phenols
Hazardous decomposition products:	Carbon monoxide, Carbon dioxide, Nitrogen oxides (NOx), Cyanide

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:	ihl-rat LC50:123 mg/m ³ /4H orl-rat LD50:4825 mg/kg skn-rat LDLo:1 mL/kg
Skin corrosion/irritation:	
Serious eye damage/irritation:	
Germ cell mutagenicity:	
Carcinogenicity:	
Reproductive toxicity:	
RTECS Number:	NQ9370000

12. ECOLOGICAL INFORMATION

Ecotoxicity:	
Fish:	No data available
Crustacea:	No data available
Algae:	No data available
Persistence / degradability:	0 % (by BOD), 100 % (by GC)
Bioaccumulative potential(BCF):	No data available
Mobility in soil	
Log Pow:	4.75
Soil adsorption (Koc):	No data available

12. ECOLOGICAL INFORMATION

Henry's Law constant(PaM³/mol): 6.7

13. DISPOSAL CONSIDERATIONS

Recycle to process, if possible. Consult your local regional authorities. You may be able to burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION

UN-No: 2290

ADR/RID

Hazards Class: 6.1: Toxic substance.
Proper shipping name: Isophorone diisocyanate
Packing group: III

IMDG/IMO

Hazards Class: 6.1: Toxic substance.
Proper shipping name: Isophorone diisocyanate
Packing group: III

ICAO/IATA

Hazards Class: 6.1: Toxic substance.
Proper shipping name: Isophorone diisocyanate
Packing group: III

15. REGULATORY INFORMATION

Indication of danger:

N - Dangerous for the environment

T - Toxic

Xi - Irritant

In accordance with local and national regulations

R-phrases(s)

R23 - Toxic by inhalation.

R36/37/38 - Irritating to eyes, respiratory system and skin.

R42/43 - May cause sensitisation by inhalation and skin contact.

R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases(s)

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 - After contact with skin, wash immediately with plenty of soap and water.

S38 - In case of insufficient ventilation, wear suitable respiratory equipment.

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.

16. OTHER INFORMATION

Prepared by: TCI Chemicals (India) Pvt. Ltd.

Issue date: 10/30/2014

This SDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority.

The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.